A COMPARISON OF PERFORMANCE ON TWO ADOLESCENT LANGUAGE TESTS

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ABSTRACT

A COMPARISON OF PERFORMANCE ON TWO ADOLESCENT LANGUAGE TESTS

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The purpose of this study was to examine the relationship of performance on the Fullerton Language Test for Adolescents (FLTA) (Thorum, 1980) and the Clinical Evaluation of Language Functions (CELF) (Semel & Wiig, 1981). In addition, performance on these two language tests was compared to academic grades and achievement as measured by the California Achievement Test (CAT) (1977).

The subjects were 30 sixth grade students selected from a rural elementary school located in the northwestern mountains of North Carolina. Their ages ranged from 11 years 6 months to 12 years 5 months with a mean age of 12 years 1 month. The FLTA and the CELF were administered individually to each subject according to standardized procedures.

Performance on the FLTA, the CELF, academic grades, and the CAT was analyzed by means of the Spearman Rank Order Correlation Coefficient. The intercorrelations among overall performance on

these measures were all positive and significantly different from zero, ranging from a moderate degree of correlation (r = .487, p = .003) between the CELF Processing subtests and academic grades, to a marked degree of correlation (r = .849, p = .001) between the overall performance on the CAT and the FLTA. This suggested that performance on these measures is closely associated; that is, those students who scored high on one measure tended to score high on the others, and conversely, those who scored low on one measure also scored low on the others. Nevertheless, when the frequency and proportion of students who passed and failed these measures were considered, discrepant results were observed in the way students performed from one measure to another. On the FLTA, 30 percent of the students taking the test passed and 70 percent failed, whereas on the CELF, 53 percent passed and 47 percent failed. On the CAT, 87 percent of the students passed and 13 percent failed suggesting that students performed differently on the FLTA, the CELF, and the CAT. Moreover, academic grades indicated that all students achieved at least average performance in the classroom.

These results appeared to indicate that students attained higher performance on achievement tests and academic grades than their performance on adolescent language tests would suggest. On the basis of these findings, it appeared that students performed differently on the two adolescent language tests, an achievement test, and academic grades.

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Chapter 1

INTRODUCTION

Statement of the Problem

Adolescence is a time when individuals are maturing and becoming a part of the adult world. Adolescents are leaving childhood behind and are developing more abstract thinking processes than the concrete strategies which they relied on during childhood (Cook, 1979). They are becoming less dependent on the family and placing more importance on developing relationships and a support system within the peer group (Cook, 1979).

Comparisons of the social relationships of youngsters with learning disabilities and normally achieving youngsters have shown that those with learning disabilities are more likely to be rejected by peers and are considered less than adequate communicators by others (Bryen, 1977). Adolescents who are high achievers do not want to be associated with someone who is considered different, someone who has a learning disability (Cook, 1979). Although adolescents with learning disabilities are aware of their deficiencies, they may not be able to compensate for them. This may result in a distorted sense of self and failure to

develop the competence to interact with and control the environment (Cook, 1979). Developing adequate verbal and nonverbal communication skills and adaptation of academic or vocational tasks may improve the potential of language/learning disabled youngsters for self actualization. This may be accomplished through vocational and professional pursuits or interpersonal interactions (Wiig, 1976).

The ability to communicate effectively serves as a stepping stone into the adult world. When adolescents know that they can communicate an idea effectively by holding another person's attention, they develop a sense of self-worth. When they know that a message is being understood by their conversational partners, they are demonstrating their ability to interpret both verbal and nonverbal cues. Adolescents who have language/learning disabilities may not be aware of these cues because of problems in social perception. This deficit limits their ability to interpret and respond appropriately to verbal and nonverbal messages (Wiig & Semel, 1980).

Adolescents must be competent communicators in order to succeed in the world at large and in the classroom in particular. The serious as well as subtle communication problems of the learning disabled adolescent may exacerbate academic problems (Leonard, Prutting, Perozzi, & Berkley, 1978). These communication deficits interfere with the interpretation and production of messages and affect learning and interpersonal

interactions (Wiig & Semel, 1980). Any aspect of learning which requires the ability to use language may be affected. It is evident from the definition of learning disabilities in Public Law 94-142 that individuals who have specific learning disabilities may also have problems with language which will in turn affect their ability to listen, think, speak, read, write, spell, or do mathematical calculations (U.S.O.E., 1979).

Weiner (1974) investigated the influence of early language problems on the academic and social skills of youngsters later in life. In a case study of a boy with a severe language delay, he found that the child's peers ignored him and that dependency on his family was greater than that found with most adolescents. "Indeed the pervasiveness of the effects of his language deficiencies was striking. It affected his communication, education, and social adjustment (resulting in his relative isolation from his peers)" (Weiner, 1974, p. 210).

Research focusing on the language of adolescents has lagged far behind that undertaken with younger children. A primary reason for this seeming disinterest was the unavailability of standardized, reliable, and valid assessment devices that could provide a comprehensive view of adolescent language behavior (Hammill, Brown, Larsen, & Wiederholt, 1980). Prior to the enactment of Public Law 94-142 which mandated the provision of services for the handicapped from 3 to 21 years of age, few investigations of adolescent language development were

undertaken. In response to this mandate, four adolescent language tests were independently developed to evaluate specific processing and production problems of students from the sixth to the twelfth grades. Three of these tests provide diagnostic information focusing on the language strengths and weaknesses of the adolescent while the fourth is a screening tool used for identification and referral.

Because these tests were developed within months of each other, they have not been validated against one another. Limited studies of test validity, however, have been conducted on each individual language test. Thorum (1980) examined the content validity and construct (diagnostic) validity of the Fullerton Language Test for Adolescents (FLTA) (Thorum, 1980). Content validity was examined by comparing the content of the FLTA to that of four other widely used language tests. Construct (diagnostic) validity was determined by applying a t test to the performance of two groups of adolescents on the FLTA, one functioning in the regular classroom and the other in various special education classes. The test authors of the Clinical Evaluation of Language Functions (CELF) (Semel & Wiig, 1981) established concurrent validity of their test by comparing performance on it with performance on existing criterion measures of speech and language abilities. This validation study was undertaken using the test protocols of 30 children with language disabilities in grades five and six.

The present study compared overall performance on the FLTA and the CELF. A high degree of correspondence between the two would indicate that it is possible to predict performance on one test from knowledge of performance on the other. In a companion study, Heffron (1982) compared the relationship of test performance between the Test of Adolescent Language (TOAL) (Hammill et al., 1980) and the Fullerton Language Test for Adolescents (Thorum, 1980). The results of Heffron's (1982) study indicated significant correlations between overall performance on the TOAL and the FLTA (r = .821, p = .000), suggesting that performance on these tests is similar. Heffron (1982) concluded that it was possible to predict the outcome of performance on one test from knowledge of performance on the other. Moreover, it was suggested that these tests could be used interchangeably and that they were good predictors of both academic performance and school grades.

Purpose of the Study

The purpose of the present study was to examine the relationship of performance on the FLTA and the CELF. In addition, performance on these two language tests was compared to academic grades and achievement test performance. As a result of these comparisons, the answers to the following questions were sought:

1. Do adolescent language tests measure the same language skills?

2. Do adolescents perform in the same way on adolescent language tests?

3. Do adolescent language tests measure the same language skills as achievement tests?

4. Do adolescent language tests measure the same language skills taught in the classroom?

Delimitations

1. This study was limited to 30 sixth grade students from a rural area of Ashe County, North Carolina.

2. The testing protocol involved individual administration of the FLTA and the CELF by the experimenters, two graduate students in Speech Pathology, who were assisted by six additional examiners, undergraduate students in Speech Pathology.

Limitations

1. Generalizations should be made with care from this study due to the limited population tested.

2. An order effect may have influenced test results since only partial counterbalancing was achieved in the testing protocol due to time constraints.

Assumptions

The following assumptions were made in the study:

1. That the researcher was qualified to administer, score, and interpret all testing procedures used in this study.

2. That each examiner administered and scored the language tests according to standardized procedures.

Hypotheses

The following hypotheses, stated in the null form, were tested at the .05 level of significance.

Ho 1. There is not a significant correlation between overall performance on adolescent language tests.

Ho 2. There is not a significant correlation between overall performance on adolescent language tests and academic grades.

2.1 There is not a significant correlation between overall performance on the FLTA and academic grades.

2.2 There is not a significant correlation between overall performance on the CELF and academic grades.

Ho 3. There is not a significant correlation between overall performance on adolescent language tests and the California Achievement Test.

3.1 There is not a significant correlation between overall performance on the FLTA and the California Achievement Test.

3.2 There is not a significant correlation between overall performance on the CELF and the California Achievement Test.

Chapter 2

REVIEW OF RELATED LITERATURE

What is Adolescence?

In Western society, adolescence is recognized as a separate stage of life between childhood and adulthood which is distinctly different from these stages. It is defined more by psychological, physiological, and sociological factors than by chronological age. Adolescence is a transition period, during which the person is supposed to mature mentally, physically, emotionally, morally, and socially. The adolescent undergoes many changes and experiences, many conflicts and frustrations (Pilliteri, 1977).

Adolescence begins with pubescence, a period of rapid physical growth and maturation of reproductive functioning and primary and secondary sexual characteristics. The normal age range for puberty is 10 to 16 for girls with an average age of 12, and 12 to 18 for boys with an average age of 14 (Papalia & Wendkos, 1978). Puberty is accompanied by an adolescent growth spurt that occurs in girls between the ages of 11 and 13, and boys between 13 and 15 1/2 (Papalia & Wendkos, 1978). Many young adolescents appear awkward because of these growth spurts. The

milestones of physical development during the adolescent period, therefore, are the onset of puberty and the cessation of body growth.

Erikson (1968) believes the necessary outcome of adolescence should be identity. By this he means that a clear sense of "who one is" and "what one is", is the adolescent's most important developmental task. Conflicts with parents, peers, and other pressures can make it difficult for adolescents not to confuse their own sense of self with what others expect or imagine.

The ultimate aim of the adolescent is independence from the family. The desire to be independent is fierce, yet the need to be loved and cared for is also intense (McLeod, 1974). Adolescents long to be self-directing, however, they do not know what direction to take. They wonder if they will be able to deal with the harsh realities of life and the world and worry a lot about failing.

It is between the years of 6 and 12 that most of the process of socialization occurs (McLeod, 1974). Youngsters learn the rules of behavior necessary for living with the people they find around them. Adolescents trust their peers not to treat them like children, so they spend much time with their friends, engaged in group and communal activity. Girls and boys become increasingly interested in one another at about 11 years of age, however, at this age, they are particularly insecure and they

remain divided by sexes (McLeod, 1974). The clique gives adolescents status and a means of defining themselves. It is "a handle" they can hold on to while shaping an identity.

From about the age 11 or 12, adolescents are capable of systematic experimentation (McLeod, 1974). Given a problem, they can consider all possible combinations of events and eliminate all the combinations that are irrelevant to the task until discovering the correct one. This creates the ability to consider hypothetical propositions and to reason. For example, adolescents may consider what the world would be like without cars. When the hypothetical can be comprehended, the ability to understand abstract principles follows. This leads adolescents to deal with abstractions in their own lives such as conformity and ethics. They can integrate what they have learned in the past with their problems of the present and their planning for the future. The interaction of these factors (systematic experimentation, hypothetical reasoning, the ability to understand abstract principles, and to integrate what they have learned) brings about the maturation of cognitive structures.

What are the Components of Adolescent Language?

As young adolescents' cognitive structures begin to mature the immediate knowledge of language without the conscious use of reasoning becomes possible. Between 10 and 12 years of age, adolescents enter the period labeled by Piaget (1959) as the

Formal Operations Period. During this period, phonological acquistions occur including the mastery of morphophonemic rules. "These rules account for the changes in meaning brought about by changing sounds or intonation" (Borden & Harris, 1980, p. 7). Morphophonemic rules of language are acquired and adolescents learn that they can modulate the meaning of words-- "wife" can become "wives", "electric" can become "electricity", and "yes" can be expressed as "yes?".

Corresponding to the phonological development of this period is grammatical development. Adolescents become capable of thinking about what can be said and what cannot be said. Their growth toward physical maturity, then, is accompanied by a corresponding development in language structure (O'Donnell, Griffin & Norris, 1967).

O'Donnell et al. (1967) investigated the language skills of 30 children enrolled in kindergarten and 30 children each from the first, second, third, fifth, and the seventh grades in Murfreesboro, Tennessee. O'Donnell et al. (1967) found the following characteristics to be exemplary of the language production of the 10 to 12 year olds: a reduced incidence of garbles (false starts, abnormal redundancies, and word tangles); an increase in sentence-combining transformations; main clause coordinations; and nominal, adverbial, and coordinated constructions with a significant increase of nominals containing adjectives and prepositional phrases by the age of 11.

Significant increases in the frequency of coordinate nominals were also noted at about this age, and there was an overall increase in the use of sentence adverbials. Of the structures used by this age group, 85% contained the subject-verb and the subject-verb-object sequence (O'Donnell et al., 1967).

Loban (1963) also reported on the growth of children's language, drawing his analysis from language samples taken over a 13 year period from the same 211 children in Oakland, California. This longitudinal study was initiated when the children entered kindergarten and ended at 18 years of age or at graduation. At 10 to 12 years of age, these youngsters could frame hypotheses and imagine their consequences. Syntactically, they were using complex sentences. They had acquired the transformational rules for embedding one sentence into another. They used subordinate clauses introduced by connectives like: provided that, nevertheless, or unless. Auxilary verbs such as might, should, and could appeared more frequently in their language, but distinguishing the past, past present, and present perfect tenses of the verb proved difficult. Almost none of these youngsters used the expanded forms of past perfect and future perfect. Loban (1963) described all these youngsters as showing an increased use of longer communication units and subordinate adjectival clauses. In addition, nouns modified by a participle or participial phrase appeared more frequently and the gerund phrase, the adverbial infinitive, and the coordinate predicate were used more often.

What is Validity?

Validity refers to the extent to which a test measures what it claims to measure. When evaluating assessment tools, the advantages and disadvantages of each must be considered so that the most likely to yield data of adequate validity may be selected. This validation of test scores involves the investigative process of gathering information about appropriateness of test inferences (Anastasi, 1976). All procedures for determining test validity are concerned with the relationships between performance on the test and independently observable facts about the behavior characteristics under consideration. Specific aspects of the test validation process have been classified by the American Psychological Association (1974) in Standards for Educational and Psychological Tests under three principal categories: content validity, construct validity, and criterion related validity.

Content validity is most commonly evaluated for tests of skill or knowledge. It involves the systematic examination of test content to determine whether it covers a representative sample of the behavior domain to be measured (Anastasi, 1976). The behavior domain tested must be systematically analyzed to insure that all major aspects are covered by the test items. The establishment of content validity requires a clear definition of what the content is by examining the appropriateness of the items

included and insuring a complete sample of these items. To increase the likelihood of adequate content validity, test authors must construct a test that measures the desired content in the desired way (Salvia & Ysseldyke, 1981). Face validity involves a judgement which suggests that the requirements of a test merely appear to be relevant (American Psychological Association, 1974). This is not validity in the technical sense and is not content validity. Face validity involves observer judgement in which the observer functions as a measuring instrument with the judgements being the read-out.

Construct validity is the extent to which a test may be said to measure a theoretical construct (Anastasi, 1976). Examples of such constructs are intelligence, verbal fluency, or mechanical comprehension. Construct validity is inferred when a test is evaluated in light of the specified construct. To validate a construct, it is necessary to rely on indirect evidence and inference. Specific techniques suitable for construct validation include age differentiation, factor analysis, and internal consistency. Age differentiation is based on the notion that if certain abilities such as language use improve with age, then test scores should reflect those increases. Basic also to this notion is sequential patterning of development. For example, if three levels of mastery exist on an individual language test and children exhibit mastery of level three, then it can be assumed that they have mastered levels one

and two. The major purpose of factor analysis as a technique of construct validation is to simplify the description of behavior by reducing the behavioral domain to a few common factors. Finally, the application of internal consistency involves the correlation of subtest scores with total scores, characterizing the behaviorial domain sampled by the test.

Criterion related validity indicates the effectiveness of a test in predicting an individual's behavior in specified situations where performance is checked against a criterion (Anastasi, 1976). This applies when inferences are made from test scores about an individual's most probable standing on a criterion. The criterion is a direct independent measure of the behavior which the test is designed to predict. The American Psychological Association (1974) test standards differentiate between predictive and concurrent validity on the basis of temporal relations between criterion and test. Predictive validity indicates the extent to which an individual's future level on a criterion can be predicted from knowledge of prior test performance and involves a time interval during which something may change. Concurrent criterion related validity refers to how accurately a person's current test score can be used to estimate the current criterion score. Concurrent validity is relevant to tests employed for diagnoses of existing status rather than prediction of future outcome (Anastasi, 1976).

Are Adolescent Language Tests Valid?

Heffron (1982) compared the relationship of test performance among the Test of Adolescent Language (TOAL) (Hammill et al., 1980) the Fullerton Language Test for Adolescents (FLTA) (Thorum, 1980), academic grades, and California Achievement Test (CAT) (1977) scores on the same 30 sixth grade subjects in the present study. The data were analyzed using the Pearson Product Moment Correlation and the Spearman Rank Order Correlation Coefficient.

When the Pearson Product Moment Correlation was applied to performance on the TOAL and the FLTA, a high positive relationship was revealed (r = .821). This significant correlation between overall performance on the TOAL and the FLTA appeared to indicate that these tests evaluated language in the same way. Therefore, Heffron (1982) concluded that these tests could be used interchangeably and that performance on each could be expected to be similar.

To test the relationship among total performance on the TOAL, the FLTA, and academic grades, the Spearman Rank Order Correlation Coefficient was applied. Although significant correlations at the .05 level were obtained between the two language tests and academic grades, the correlations between performance in the classroom and overall performance on the TOAL (r =.348) and the FLTA (r = .383) were low. Therefore, it was

speculated that other aspects of language arts were being emphasized in the classroom rather than those evaluated on the TOAL and the FLTA. According to Heffron (1982), the TOAL appears to be testing overall cognitive abilities not exclusively language arts.

The relationship of overall performance on the CAT with overall performance on the TOAL ($\underline{r}$ = .580), and the FLTA ($\underline{r}$ = .795) was evaluated using the Pearson Product Moment Correlation. This analysis revealed significant correlations at the .05 level for all three tests. Heffron (1982) suspected that the areas of language being tested by the TOAL and the FLTA were representative of the language skills required in the academic areas of Social Studies, Mathematics, and Science, since the correlations among these areas of the CAT, the FLTA, and the TOAL appeared higher. It was concluded, therefore, that the adolescent language tests were good predictors of overall achievement on the CAT.

The conclusions drawn by Heffron (1982) appear to be, for the most part, unwarranted. If Heffron (1982) had examined the passing and failing rates for each of the adolescent language tests and the CAT, significant discrepancies in performance would have been observed. The Pass/Fail rates show that 27% of the subjects passed the TOAL and 73% failed; while on the FLTA, 30% passed and 70% failed. These results show that more youngsters failed these adolescent language tests than is typical of an

unselected population. Even though the correlations suggest that these tests evaluate the same areas of language, and performance on each is similar, the Pass/Fail rates seem to indicate that these tests are too difficult even for youngsters with normal language skills.

In addition, these results suggest that adolescent language tests do not measure the same language skills thought to be important in the classroom. This becomes evident when academic grades are compared to adolescent language test scores. That other aspects of language arts are being emphasized in the classroom than those tested on the TOAL and the FLTA is supported by better grades and higher achievement test scores than adolescent language test scores would suggest. Contradictory results presented by the Pass/Fail rates for the FLTA, the TOAL, and the CAT make it impossible to conclude that these adolescent language tests are good predictors of overall achievement on the CAT. The Pass/Fail rates are much better for the CAT with 87% of the subjects passing the test and only 13% failing. Again, youngsters are doing much better on achievement tests than on adolescent language tests.

Summary

As youngsters enter adolescence, they experience periods of intellectual, social, and physical change. Accompanying these transitional periods of overall development are changes in their

language skills. They are acquiring morphophonemic rules, increasing the length and complexity of their communication units, and broadening the content of the language they use. Even adolescents with normal language abilities have adjustment problems during this period of development, but language/learning disabled adolescents may have an abundance of difficulties. Their language disabilities can only complicate any developmental adjustment problems they may be experiencing. It is the responsibility of the speech-language clinician to identify these language/learning disabled youngsters, to evaluate their specific language disabilities, and to establish a program of intervention. This process of identification, evaluation, and intervention is possible when individual language measures are available that provide specific information necessary for precise measurement of adolescent language skills. Clinicians must evaluate the validity and reliability of any test they are considering for use. Only through careful examination of these factors can they avoid erroneous interpretations and perhaps harmful decisions (Weiner & Hoock, 1973). In particular, the type and degree of validity should be a major concern in selecting a test. For these reasons, to insure that individual language tests measure the skills they purport to measure, the test user must be familiar with all of their psychometric characteristics, but especially with their validity.

Chapter 3

METHODS AND PROCEDURES

Subjects

The subjects in this study were 30 sixth grade students selected from a rural elementary school located in the northwestern mountains of North Carolina. Their ages ranged from 11 years 6 months to 12 years 5 months with a mean age of 12 years 1 month. To obtain these 30 participants, 60 Consent to Test forms (See Appendix A) were sent home to the parents of the students from the two sixth grade classrooms. Thirty-nine (65%) of the forms were returned, granting permission to test. From these, 30 students were selected at random to comprise the study sample. Twenty-five of the subjects participating in this study agreed to submit their academic grades and achievement test scores for examination while the remaining five subjects moved from the school district before these scores could be obtained.

Because the residents of this county tend to be isolated geographically and culturally from the remainder of the state's inhabitants, a comparison of the major demographic features of these residents with statewide characteristics seemed

appropriate. Approximately 84% of the county residents are native North Carolinians, nearly twice the number for the entire state. Of those county residents who were 25 years of age or older, 41% graduated from high school with the median number of years completed being 10.7. In the state of North Carolina, high school graduates comprised 54% of the population and the median number of years completed in school was 12.2. Economic conditions in the county appear depressed in comparison to the statewide situation. Over 19% of the families in the county have been designated "poverty status" while only 11% of those living in the state have been so assigned. In 1979, the median income of families living in the county was approximately $11,835 compared to $16,792 for other North Carolina families. Inhabitants of the county earn their livings primarily through work in light industry and service occupations (North Carolina State Government Statistical Abstract, 1984).

Methods

The experimenters, two graduate students in Speech Pathology, were self-trained in the administration of the Clinical Evaluation of Language Functions (CELF) (Semel & Wiig, 1981) and the Fullerton Test for Adolescents (FLTA) (Thorum, 1980). Six additional examiners, all undergraduate students in Speech Pathology, were given a training session in which they viewed a videotape of administrative procedures for both the CELF

and the FLTA. Scoring techniques were then explained for each test and trainees were required to administer and score portions of each test. Upon completion of these exercises, it was determined that each trainee could accurately administer and score both the CELF and the FLTA.

The CELF and the FLTA were administered individually to each subject. The individual administration of the FLTA took 45 minutes per subject and the CELF was given in 68 minutes per subject. In a companion study (Heffron, 1982) the two individual subtests of the Test of Adolescent Language (TOAL) (Hammill et al., 1980), speaking/vocabulary and speaking/grammar took 5 to 10 minutes per subject while the remaining six subtests were given to all 30 subjects in a group, taking approximately two hours. Total testing time per student for all four tests was approximately four hours.

The order of testing (See Appendix B) shows that 11 (37%) of the 30 students were given the CELF as their first test and 19 (63%) were given the CELF as their fourth test. The FLTA was administered to 17 (57%) of the 30 students as their first test, 10 (33%) as their second test, and three (10%) as their third test. The two individual subtests of the TOAL were administered to two (7%) of the 30 students as their first test, 20 (67%) as their second test, and eight (27%) as their third test. The remaining six subtests of the TOAL were given to all 30 students

in a group, with 19 (63%) receiving the TOAL as their third test and 11 (37%) receiving it fourth.

Instruments

The Fullerton Language Test for Adolescents (FLTA)

The Fullerton Language Test for Adolescents (FLTA) (Thorum, 1980), evolved out of the Communicatively Handicapped Adolescent Population Project which had as its primary mandate, the development of a speech and language program for the adolescent population (Thorum, 1980). One of the aspects of the project was to develop a language test that would help to determine the semantic and syntactic deficiencies of the adolescent. A field study edition developed in 1977 and administered to an adolescent population (Thorum, 1980) was refined and appears as the experimental edition of the FLTA (Thorum, 1980).

The FLTA is divided into eight subtests: (a) Auditory Synthesis; (b) Morphology Competence; (c) Oral Commands; (d) Convergent Production; (e) Divergent Production; (f) Syllabication; (g) Grammatic Competence; and (h) Idioms (Thorum, 1980). The Oral Commands and Syllabication subtests examine receptive language and the six other subtests examine expressive language. For a description of the individual subtests, see Appendix C.

The scoring protocol on the FLTA gives a (1) for a correct response and (0) for an incorrect response. From the raw scores,

Thorum (1980) developed a performance profile which is divided into three levels: (a) Competence level--capable of doing the particular skill; (b) Instruction level--has the needed skills for the task but needs further instruction; (c) Frustration level--does not exhibit the skills necessary to perform the task, so instruction should begin at a basic level.

There is no evidence which suggests that the FLTA was derived from any particular theory or model of language. The author of the test developed it through empirical research on adolescent language. Two of the subtests, however, divergent and convergent production, are similar to components of Guilford's Structure of Intellect Model (Guilford, 1967), but there is no evidence to show that the author of this test used this model as a basis.

Thorum (1980) evaluated the content validity as well as the construct (diagnostic) validity for the FLTA. Content validity was justified by comparing the content of the FLTA to that of four other language tests. With the exception of the Idiom subtest, the content of these instruments was reported to be similar.

To determine construct (diagnostic) validity, a t test was applied to the scores of two groups of adolescents, one group functioning in the regular classroom and one group in various special education classes. The results of the analysis indicated

that the FLTA was a good identifier of those individuals experiencing difficulty with language skills (Thorum, 1980).

Thorum (1980) also established the reliability of the FLTA through the use of a coefficient of stability using the Kuder-Richardson formula. The coefficients of stability resulted in values ranging from .70 to .80 which indicated that the items in each subtest tended to consistently measure adolescent language processes (Thorum, 1980).

Clinical Evaluation of Language Functions (CELF)

The Clinical Evaluation of Language Functions (CELF) (Semel & Wiig, 1981) was developed as an outgrowth of formal investigations of the nature and prevalence of learning disabilities (Wiig & Semel, 1980). The general purpose of the CELF is to provide differentiated measures of selected language functions in the areas of phonology, syntax, semantics, memory, and word finding and retrieval. These measures were designed to probe specific language processing and production abilities of children with language disabilities in grades K through 12 (Wiig & Semel, 1980).

The CELF features six subtests comprising the processing component, and five comprising the production component. The six subtests which measure processing are: (a) Processing Word and Sentence Structures; (b) Processing Word Classes; (c) Processing Linguistic Concepts; (d) Processing Relationships and Ambiguities; (e) Processing Oral Directions; and (f) Processing

Spoken Paragraphs. The five subtests involved in the production component of the CELF include: (a) Producing Word Series; (b) Producing Names on Confrontation; (c) Producing Word Associations; (d) Producing Model Sentences; (e) Producing Formulated Sentences; (f) Processing Speech Sounds; and (g) Producing Speech Sentences. For a description of the individual subtests, see Appendix D.

The CELF was designed to be administered individually. Ten of the subtests are untimed and are scored for accuracy of response. Three of the other subtests, Producing Word Series, Producing Names on Confrontation, and Producing Word Associations, are timed and assess the speed or quantity of responses as well as accuracy.

Scoring principles for each subtest are described in the Diagnostic Battery Examiner's Manual and were followed in this study. Overall scores for the processing components and production components may be computed from scores on individual subtests.

The current standardization sample (CELF Update III, 1983) for the CELF included 1,378 normal students in grades K through 12 who were: (a) placed in a regular classroom; (b) not receiving special education or related services; (c) not exhibiting handicaps or deficits; and (d) considered by their teachers to be of average intellectual ability. The sexual, racial, and

geographic characteristics of the sample closely approximated 1980 Census Data.

To establish concurrent validity of the CELF, comparisons of performance on the Diagnostic Battery with performance on existing criterion measures of speech and language abilities were made, based on the test protocols of 30 children with learning disabilities. All of the children in the sample attended the fifth and sixth grades in a suburban middle class public school. The children ranged in age from 12 years 2 months to 12 years 7 months, with a mean age of 12 years 4 months.

The speech and language tests selected as criterion measures were the: (a) verbal subtests of the Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk, McCarthy, & Kirk, 1968) and (b) selected verbal subtests of the Detroit Test of Learning Aptitude (DTLA) (Baker & Leland, 1967) including Verbal Opposites, Social Adjustment, and Auditory Attention Span for unrelated words and related syllables. These measures were selected on the basis of their common usage and relative age appropriateness.

The correlation coefficient for all subtests of the CELF with the verbal subtests of the ITPA and with the DTLA was .87 and .52, respectively. For the processing subtests of the CELF and the verbal subtests of the ITPA, the correlation coefficient was .56, whereas for the production subtests of the CELF and the

verbal subtests of the ITPA and the DTLA, the correlation coefficients were .83 and .50, respectively.

Stability of performance was established for the total battery of CELF subtests and for individual subtests by administering the battery twice with a six week interval between tests. The sample contained 30 randomly selected, academically achieving children with normal language development. All the children attended the same suburban school in grade two and their ages ranged from 8 years 3 months to 8 years 6 months, with a mean age of 8 years 5 months.

All test-retest reliability coefficients (r) proved significant at the .01 level. The correlation coefficients (r) for individual subtests ranged from .56 to .98. To be most reliable, the CELF should be administered as a total battery or in sections (Processing or Production). The correlation coefficient for the entire battery was .96. For the processing and production subtests, the correlation coefficients were .93 and .89, respectively.

Analysis of Data

To compare the relationship of performance on the two adolescent language tests, the Clinical Evaluation of Language Functions (Semel & Wiig, 1981) and the Fullerton Language Test for Adolescents (Thorum, 1980), the data were submitted to a Spearman Rank Order Correlation Coefficient and tested at the .05

level. A similar analysis was performed to examine the relationship between language test performance and achievement test performance, and language test performance and academic grades.

Chapter 4

RESULTS AND ANALYSIS

Results

The results of individual performance on two adolescent language tests, academic grades, and achievement test scores are presented in Tables 1 through 5.

As is shown in Table 1, overall performance on the Fullerton Language Test for Adolescents (FLTA) (Thorum, 1980) ranges from 60 to 188 with a mean of 141.07 and a standard deviation of 27.80. In Table 2, the overall raw scores on the Processing subtests of the Clinical Evaluation of Language Functions (CELF) (Semel & Wiig, 1981) range from 177 to 267 with a mean of 234.4 and a standard deviation of 22.42, whereas in Table 3, the overall raw scores on the CELF Production subtests range from 91 to 239 with a mean of 175.33 and a standard deviation of 41.38.

Performance on the California Achievement Test (CAT) (1977) is presented in Table 4. Overall scaled scores range from 365 to 613 with a mean of 494.80 and a standard deviation of 60.75. This is equivalent to a range in percentile rank from the 2nd to the 97th, with a mean of 51.2 and a standard deviation of 27.8.

Table 1

Individual Raw Scores on the FLTA

	Subtests								
Subjects	AS	MC	OC	CP	DP	SY	GC	ID	Total
1	12	16	16	28	36	16	14	4	142
2	4	9	5	14	31	5	18	0	86
3	7	14	18	28	38	9	16	4	134
4	17	16	19	35	56	19	17	4	183
5	5	15	14	24	45	9	14	5	131
6	5	12	9	20	29	11	10	1	97
7	10	13	14	29	27	15	14	5	126
8	4	13	16	28	49	12	17	2	141
9	3	11	12	28	43	11	12	9	129
10	10	16	16	28	46	19	16	3	154
11	8	17	16	28	25	15	15	3	127
12	14	15	19	35	39	14	17	7	160
13	8	17	14	28	43	12	16	5	143
14	18	17	20	34	34	15	17	6	161
15	7	15	18	30	47	9	15	3	144
16	14	18	17	32	39	15	15	5	155
17	12	13	17	30	32	10	17	4	135
18	13	18	17	31	41	15	16	10	161
19	17	16	17	37	40	17	17	3	164
20	3	6	13	10	11	0	13	4	60

Table 1 (continued)

Individual Raw Scores on the FLTA

	Subtests								
Subjects	AS	MC	OC	CP	DP	SY	GC	ID	Total
21	11	12	15	27	35	7	18	4	129
22	13	16	15	35	46	17	18	9	169
23	17	19	20	38	48	15	18	10	185
24	10	17	15	31	37	15	16	7	148
25	9	14	10	27	33	14	16	6	129
26	7	15	17	25	43	18	19	7	151
27	14	16	13	27	51	20	16	8	165
28	15	20	16	40	55	14	19	9	188
29	4	15	13	26	29	10	13	3	113
30	8	15	8	24	31	15	17	4	122
Range	3-18	6-20	5-20	10-40	11-56	0-20	10-19	0-10	60-188
Mean	9.97	14.87	14.93	28.57	38.63	13.1	15.87	5.13	141.07
S.D.	4.50	2.86	3.47	6.25	9.50	4.35	2.04	2.56	27.80

FLTA: Fullerton Language Test for Adolescents
AS: Auditory Synthesis
MC: Morphology Competency
OC: Oral Commands
CP: Convergent Production
DP: Divergent Production
SY: Syllabication
GC: Grammatic Competency
ID: Idioms

Table 2

Individual Raw Scores on Processing Subtests of the CELF

	Subtests						Total	
Subjects	PRWSS	PRWC	PRLC	PRRA	PROD	PRSP	Raw	Percentile
1	48	43	42	58	22	14	227	20
2	36	21	40	44	24	12	177	5
3	44	38	43	46	22	16	209	10
4	46	42	42	60	48	29	267	95
5	45	25	44	47	41	16	218	15
6	40	30	42	43	34	11	200	5
7	42	35	41	45	43	13	219	15
8	40	36	42	42	44	15	219	15
9	46	40	41	49	40	13	229	25
10	40	39	42	55	41	21	241	45
11	48	27	37	53	43	18	226	20
12	47	43	44	58	46	21	259	85
13	42	39	44	62	48	25	260	85
14	44	40	44	53	48	19	248	65
15	46	40	42	56	48	20	252	75
16	46	44	42	51	50	18	251	70
17	46	32	44	48	34	24	228	25
18	44	41	44	62	48	18	257	80
19	45	40	39	51	47	19	241	45

Table 2 (continued)

Individual Raw Scores on Processing Subtests of the CELF

	Subtests						Total	
Subjects	PRWSS	PRWC	PRLC	PRRA	PROD	PRSP	Raw	Percentile
20	42	20	40	33	40	16	191	5
21	38	39	44	54	40	24	239	40
22	48	40	44	60	48	23	263	90
23	34	42	44	58	48	24	250	70
24	49	43	38	45	40	17	232	30
25	44	40	38	45	32	24	223	20
26	46	42	42	58	46	18	252	75
27	42	44	42	54	48	17	247	60
28	46	37	44	57	50	32	266	95
29	38	28	41	44	42	14	207	5
30	45	43	40	50	44	12	234	35
Range	34-49	20-41	37-44	33-62	22-50	11-29	177-267	5-95
Mean	43.57	37.10	41.87	51.37	41.37	18.77	234.4	44.17
S.D.	3.68	6.70	2.01	6.90	7.86	5.06	22.42	30.79

CELF: Clinical Evaluation of Language Functions
PRWSS: Processing Word and Sentence Structure
PRWC: Processing Word Classes
PRLC: Processing Linguistic Concepts
PRRA: Processing Relationships and Ambiguities
PROD: Processing Oral Directions
PRSP: Processing Spoken Paragraphs

Table 3

Individual Raw Scores on Production Subtests of the CELF

	Subtest				Total	
Subjects	PDCN	PDWA	PDMS	PDFS	Raw	Percentile
1	65	26	48	42	181	35
2	00	30	25	36	91	5
3	65	24	42	44	175	30
4	80	37	46	50	213	85
5	00	33	50	43	126	5
6	00	21	30	41	92	5
7	69	36	48	49	202	75
8	67	30	48	41	186	40
9	00	35	34	33	102	5
10	60	27	51	56	194	55
11	50	23	44	35	152	15
12	61	38	54	48	201	75
13	72	33	50	53	208	80
14	53	27	56	45	181	35
15	78	37	42	61	218	90
16	77	37	56	41	211	80
17	50	23	48	45	166	25
18	68	33	50	43	194	55
19	73	32	44	67	216	85

Table 3 (continued)

Individual Raw Scores on Production Subtests of the CELF

	Subtest				Total	
Subjects	PDCN	PDWA	PDMS	PDFS	Raw	Percentile
20	37	18	34	23	112	5
21	00	20	48	50	118	5
22	78	35	46	45	204	80
23	90	42	58	49	239	95
24	00	27	46	48	121	5
25	50	33	36	45	164	25
26	67	34	56	38	195	55
27	75	33	44	62	214	85
28	73	44	57	48	222	90
29	79	19	41	45	181	40
30	70	28	38	42	178	30
Range	0-90	18-44	25-58	23-67	91-239	5-95
Mean	53.57	30.50	45.67	45.60	175.33	46.50
S.D.	28.83	6.64	8.04	8.65	41.38	31.96

CELF: Clinical Evaluation of Language Functions
PDCN: Producing Names on Confrontation
PDWA: Producing Word Associations
PDMS: Producing Model Sentences
PDFS: Producing Formulated Sentences

Table 4

California Achievement Test Scores

	Reading		Spelling		Language		Mathematics		Total	
Subjects	S.S.	%ile	S.S.	%ile	S.S.	%ile	S.S.	%ile	S.S.	%ile
1	535	68	598	80	590	84	526	72	537	75
2	366	3	347	1	434	12	399	6	377	3
3	500	50	517	43	514	45	491	49	490	47
4	571	84	650	93	643	96	611	98	613	97
5	337	1	439	12	444	14	471	36	422	13
6	347	2	439	12	378	2	449	23	392	6
7	443	22	419	8	518	47	476	39	462	30
9	447	24	577	72	463	21	500	55	466	33
11	450	25	537	53	475	26	471	36	458	28
12	587	89	498	34	590	84	523	70	541	77
13	472	36	577	72	509	42	497	53	485	44
14	517	59	479	26	535	57	516	65	507	57
15	535	68	459	18	571	76	550	84	534	74
16	521	61	556	62	601	87	526	72	513	72
18	648	98	517	43	509	42	530	74	534	74
19	545	73	598	80	541	60	543	80	539	76
20	391	6	439	12	369	2	382	3	365	2
21	496	48	598	80	491	33	465	32	478	39
22	633	97	517	43	627	93	566	89	585	93

Table 4 (continued)

California Achievement Test Scores

	Reading		Spelling		Language		Mathematics		Total	
Subjects	S.S.	%ile	S.S.	%ile	S.S.	%ile	S.S.	%ile	S.S.	%ile
23	512	56	556	62	562	72	510	62	514	62
26	525	63	498	34	509	42	500	55	498	52
27	504	52	577	72	524	51	526	72	511	60
28	579	86	686	97	601	87	562	88	582	92
29	457	28	479	26	487	31	471	36	460	29
30	521	61	556	62	509	42	471	36	489	46
Range:	337-648	1-98	347-686	1-97	369-643	2-96	382-611	3-98	365-613	2-97
Mean:	497.6	50.4	524.5	47.9	519.8	49.9	501.3	55.4	494.8	51.2
S.D.:	78.9	29.5	75.9	28.2	68.8	28.3	49.2	25.5	60.8	27.8

S.S.: Scaled Score
%ile: Percentile Rank

Table 5

Individual Academic Grades

Subjects	Reading	Language	Spelling	Mathematics	*GPA
1	B+	A-	A	A-	3.67
2	A-	C+	B	D+	2.58
3	A	B+	A-	B+	3.58
4	A	A-	A	A-	3.85
5	B+	C+	D	C	2.15
6	A-	B	C	C-	2.60
7	C	C	C	C	2.00
9	C	C	C	B-	2.18
11	A	B-	B	B-	3.10
12	B-	B	B-	C+	2.68
13	B+	B	B+	B-	3.08
14	A	A	A	A	4.00
15	A	A-	A	A-	3.85
16	A-	A-	A-	A-	3.70
18	B	C-	C-	C+	2.18
19	B	B-	A-	A-	3.28
20	B	C	B-	D	2.18
21	B	C	B-	C	2.42
22	A	A-	A-	A-	3.78
23	A	B+	A-	B-	3.42
26	A	B+	A-	B	3.50

Table 5 (continued)

Individual Academic Grades

Subjects	Reading	Language	Spelling	Mathematics	*GPA
27	B+	B	B+	C+	2.98
28	A	A	A	A	4.00
29	A-	B	A	B-	3.35
30	B	C-	B-	C-	2.28
				Mean =	3.06
				S.D. =	0.66

*GPA - Grade Point Average

Conversion Scale for Grades;

A = 4.0 A- = 3.7
B+ = 3.3 B = 3.0 B- = 2.7
C+ = 2.3 C = 2.0 C- = 1.7
D+ = 1.3 D = 1.0 D- = .7

Ás is shown in Table 5, academic grades as measured by grade point average, range from 2.00 to 4.00 with a mean of 3.06 and a standard deviation of 0.66.

Analysis

The results of applying Spearman Rank Order Correlation Coefficients among the FLTA, the CELF, academic grades, and achievement test scores are presented in Tables 6 and 7.

To test hypothesis 1, the relationship between performance on two adolescent language tests was analyzed using the Spearman Rank Order Correlation Coefficient. Results show that with few exceptions the correlations between these measures are positive and significantly different from zero. As is shown in Tables 6 and 7, the degree of correlation between the individual subtests of the CELF and the FLTA range from no correlation (r = -0.066, p = .365) between the Syllabication subtest on the FLTA and Processing Linguistic Concepts on the CELF to a marked correlation (r = .697, p = .001) between Morphology Competence on the FLTA and Processing Oral Directions on the CELF. There is a marked degree of correlation between the overall scores of the CELF Processing subtests and and the FLTA (r =.832, p = .001) and between the CELF Production subtests and the FLTA of (r = .782, p =.001). As a result of this analysis, null hypothesis 1 was rejected.

Hypothesis 2 was tested also by applying the Spearman Rank Order Correlation Coefficient to adolescent language test

Table 6

Correlation Matrix for the FLTA and the CELF Processing Subtests

	PRWSS	PRWC	PRLC	PRRA	PROD	PRSP
AS	r = .239 p = .102	r = .356 p = .027	r = .181 p = .169	r = .507 p = .002	r = .503 p = .002	r = .525 p = .001
MC	r = .313 p = .046	r = .484 p = .003	r = .267 p = .077	r = .635 p = .001	r = .697 p = .001	r = .474 p = .004
OC	r = .287 p = .062	r = .342 p = .032	r = .477 p = .004	r = .527 p = .001	r = .454 p = .006	r = .539 p = .001
CP	r = .403 p = .014	r = .414 p = .011	r = .365 p = .024	r = .533 p = .001	r = .603 p = .001	r = .599 p = .001
DP	r = .117 p = .269	r = .398 p = .015	r = .451 p = .006	r = .563 p = .001	r = .606 p = .001	r = .471 p = .004
SY	r = .316 p = .045	r = .642 p = .001	r = -0.066 p = .365	r = .524 p = .001	r = .477 p = .004	r = .208 p = .135
GC	r = .003 p = .495	r = .223 p = .118	r = .358 p = .026	r = .403 p = .014	r = .340 p = .033	r = .528 p = .001
ID	r = .291 p = .059	r = .509 p = .002	r = .404 p = .013	r = .485 p = .003	r = .415 p = .011	r = .339 p = .033

CELF: Clinical Evaluation of Language Functions
PRWSS: Processing Word and Sentence Structures
PRWC: Processing Word Classes
PRLC: Processing Linguistic Concepts
PRRA: Processing Relationships and Ambiguities
PROD: Processing Oral Directions
PRSP: Processing Spoken Paragraphs

FLTA: Fullerton Language Test for Adolescents
AS: Auditory Synthesis
MC: Morphology Competence
OC: Oral Commands
CP: Convergent Production
DP: Divergent Production
SY: Syllabication
GC: Grammatic Competence
ID: Idioms

Table 7

Correlation Matrix for the FLTA and the CELF Production Subtests

	PDCN/NO	PDCN/SEC	PDWA	PDMS	PDFS
AS	r = .323 p = .041	r = .390 p = .017	r = .197 p = .149	r = .445 p = .007	r = .404 p = .013
MC	r = .361 p = .025	r = .512 p = .002	r = .388 p = .007	r = .627 p = .001	r = .345 p = .031
OC	r = .322 p = .041	r = .398 p = .015	r = .315 p = .045	r = .631 p = .001	r = .301 p = .053
CP	r = .300 p = .054	r = .500 p = .002	r = .575 p = .001	r = .552 p = .001	r = .477 p = .004
DP	r = .274 p = .071	r = .473 p = .004	r = .653 p = .001	r = .445 p = .007	r = .436 p = .008
SY	r = .517 p = .002	r = .430 p = .009	r = .326 p = .039	r = .364 p = .024	r = .309 p = .048
GC	r = .224 p = .117	r = .218 p = .124	r = .305 p = .051	r = .416 p = .011	r = .253 p = .089
ID	r = .186 p = .162	r = .176 p = .176	r = .566 p = .001	r = .474 p = .004	r = .112 p = .227

CELF: Clinical Evaluation of Language Functions
PDCN/NO: Producing Names on Confrontation/Numbers
PDCN/SEC: Producing Names on Confrontaion/Seconds
PDWA: Producing Word Associations
PDMS: Producing Model Sentences
PDFS: Producing Formulated Sentences

FLTA: Fullerton Language Test for Adolescents
AS: Auditory Synthesis
MC: Morphology Competency
OC: Oral Commands
CP: Convergent Production
DP: Divergent Production
SY: Syllabication
GC: Grammatic Competence
ID: Idioms

Tables 8

Spearman Rank Order Correlation Coefficients for Academic Grades and Adolescent Language Tests

	FLTA	CELF	
		Processing	Production
Reading	r = .429 p = .016	r = .256 p = .108	r = .298 p = .074
Spelling	r = .495 p = .006	r = .364 p = .037	r = .549 p = .002
Mathematics	r = .711 p = .001	r = .586 p = .001	r = .602 p = .001
Language	r = .606 p = .001	r = .478 p = .008	r = .533 p = .003
Total	r = .492 p = .003	r = .487 p = .003	r = .521 p = .002

FLTA: Fullerton Language Test for Adolescents
CELF: Clinical Evaluation of Language Functions

performance and academic grades. The results of this analysis are shown in Table 8. The degree of correspondence between academic grades in individual subject areas and the subtests of the FLTA and the CELF range from a low correlation (r = .256, p = .108) between reading grades and the CELF Processing subtests to a marked correlation (r = .711, p = .001) between mathematics grades and the subtests of the FLTA. The correspondence between overall grade point average (GPA) and the FLTA (r = .492, p = .001) is moderately positive and significantly different from zero as is the relationship between GPA and the CELF Processing subtests (r = .487, p = .003) and GPA and the CELF Production subtests (r = .521, p = .001). The results of these correlations reveal a moderately positive relationship which is significantly different from zero. Therefore, hypothesis 2 was rejected.

Finally, to test hypothesis 3, the Spearman Rank Order Correlation Coefficient was used to compare performance on the two adolescent language tests and achievement test scores. The correlations among these three measures, which are all positive and significantly different from zero, are presented in Table 9. The degree of correlation among the individual subtests of the CAT and the FLTA and the CELF range from a moderate correlation (r = .417, p = .019) between the CAT-Spelling subtest and the Production subtests of the CELF to a high correlation between the CAT-Mathematics subtest and the FLTA (r = .870, p = .001). Correlations among the overall scores on each instrument reveal a

Table 9

Spearman Rank Order Correlation Coefficients for Achievement Test Performance and Adolescent Language Tests

	FLTA	CELF	
		Processing	Production
CAT - R	r = .747 p = .001	r = .801 p = .001	r = .630 p = .001
CAT - S	r = .556 p = .002	r = .523 p = .004	r = .417 p = .019
CAT - L	r = .795 p = .001	r = .748 p = .001	r = .796 p = .001
CAT - M	r = .870 p = .001	r = .810 p = .001	r = .780 p = .001
CAT - T	r = .849 p = .001	r = .828 p = .001	r = .746 p = .001

FLTA: Fullerton Language Test for Adolescents
CELF: Clinical Evaluation of Language Functions
CAT: California Achievement Test
CAT - R: California Achievement Test - Reading
CAT - S: California Achievement Test - Spelling
CAT - M: California Achievement Test - Mathematics
CAT - L: California Achievement Test - Language
CAT - T: California Achievement Test - Total

marked degree of correlation between the CAT and both the FLTA (r = .849, p = .001) and the CELF Processing subtests (r = .828, p = .001) and Production subtests (r = .746, p = .001). On the basis of these results, hypothesis 3 was rejected.

Summary

The relationship between overall performance on the two adolescent language tests, academic grades, and achievement test scores was analyzed using the Spearman Rank Order Correlation Coefficient. The results indicated that with few exceptions, all relationships between these measures were positive and significantly different from zero, ranging from a moderate degree of correlation between adolescent language tests and academic grades to a marked degree of correlation among the FLTA, CELF Processing subtests, CELF Production subtests, and achievement test performance.

Chapter 5

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Summary

The purpose of this study was to examine the relationship of performance on the Fullerton Language Test for Adolescents (Thorum, 1980) and the Clinical Evaluation of Language Functions (Semel & Wiig, 1981). In addition performance on these two language tests was compared to academic grades and achievement test performance.

The subjects in this study were 30 sixth grade students ranging in age from 11 years 6 months to 12 years 5 months with a mean age of 12 years 1 month.

The FLTA and the CELF were individually administered to each subject according to standardized procedures. The individual administration of the FLTA took 45 minutes per subject and the CELF was given in 68 minutes per subject.

To test the hypotheses developed for this study, the data were analyzed by means of the Spearman Rank Order Correlation Coefficient to compare the relationship in performance between the two adolescent language tests, academic grades, and

achievement test scores. With few exceptions, the intercorrelations among these measures were all positive and significantly different from zero, ranging from a moderate to marked correspondence in performance among the measures.

Discussion

Analysis of the correlations between the FLTA and the CELF revealed a marked degree of correspondence between these two tests. This suggests that individuals who achieve high scores on one language test will also achieve high scores on the other language test and conversely, individuals who achieve low scores will achieve low scores on the other test. Although performance on these tests appears to be closely associated, the frequency and proportion of youngsters passing and failing these tests is highly discrepant. As is shown in Table 10, youngsters are not performing in the same way on these two adolescent language tests. If these tests were measuring the same language skills in the same way, there should be similar patterns of performance. However, when total Processing or Production subtests scores of the CELF are examined, the Pass/Fail rates show a complete reversal in the way youngsters perform from one test to the other. On the FLTA, 30% of the youngsters taking the test passed and 70% failed, while on either the CELF Processing or Production subtests 73% passed and 27% failed. This becomes somewhat changed when the overall passing and failing rates are considered One possible reason for these discrepancies may be that the test

Table 10

Frequency and Proportion of Passing and Failing Scores on Language and Achievement Tests

Tests	Passing Freq	Passing Prop	Failing Freq	Failing Prop
Fullerton Language Test for Adolescents				
Auditory Synthesis	10	.33	20	.67
Morphology Competence	14	.47	16	.53
Oral Commands	21	.70	9	.30
Convergent Production	6	.20	24	.80
Divergent Production	3	.10	27	.90
Syllabication	18	.60	12	.40
Grammatic Competency	20	.67	10	.33
Idioms	11	.37	19	.63
Total*	9	.30	21	.70
CELF Processing Subtests				
Word and Sentence Structure	23	.77	7	.23
Word Classes	23	.77	7	.23
Linguistic Concepts	29	.97	1	.03
Relationships and Ambiguities	21	.70	9	.30
Oral Directions	20	.67	10	.33
Spoken Paragraphs	27	.90	3	.10
Total Processing	22	.73	8	.27
CELF Production Subtests				
Word Series	25	.83	5	.17
Names on Confrontation	23	.77	7	.23
Word Associations	23	.77	7	.23
Model Sentences	24	.80	6	.20
Formulated Sentences	26	.87	4	.13
Total Production	22	.73	8	.27
Total Processing & Production**	16	.53	14	.47
California Achievement Test				
Reading	26	.87	4	.13
Spelling	25	.83	5	.17
Language	26	.87	4	.13
Mathematics	28	.93	2	.07
Total***	26	.87	4	.13

*Failed three or more subtests by scoring at least 1 S.D. below the mean.

**Failed either Total Processing, Total Production, or any three subtests by scoring below the 20th percentile.

***Failure was equivalent to scoring at least 1 S.D. below the mean.

standardization of these instruments was established on different populations. Other explanations might include different levels of item difficulty for each test and more lenient cut-off scores for the CELF than for the FLTA.

A further analysis of individual subtests on the two tests which appeared to have similar content revealed few correspondences between the two tests. The correlation coefficients for subtests with similar content range from a low correlation between Grammatic Competence and Producing Formulated Sentences ($\underline{r}$ = .253) to a marked correspondence between Divergent Production and Producing Word Associations ($\underline{r}$ = .653). The Oral Commands (OC) subtest on the FLTA was similar in content to both the Processing Oral Directions (OD) ($\underline{r}$ = .454) and Processing Linguistic Concepts (LC) ($\underline{r}$ = .477) subtests on the CELF. As shown in Table 10, the passing and failing rates for these three subtests was somewhat similar. Whereas approximately 70% of the subjects passed OC and OD, 97% passed LC. Two other subtests having similar content were Divergent Production (DP) on the FLTA and Producing Word Associations (WA) on the CELF ($\underline{r}$ = .653), however, the proportion of subjects passing or failing these subtests was highly dissimilar. Only 10% of the subjects passed Divergent Production, while 77% passed Producing Word Associations. Three subtests measured expressive syntax or the structure of language, including Producing Model Sentences (MS) and Producing Formulated Sentences (FS) on the CELF and Grammatic

Competence (GC) on the FLTA. The proportion of youngsters passing these two subtests was also dissimilar with 80% passing MS, 87% passing FS, and 67% passing GC.

Subtests on the FLTA with no apparent equivalent on the CELF were: Auditory Synthesis, Morphology Competence, Convergent Production, and Syllabication. Subtests on the CELF with no apparent equivalents on the FLTA were: Processing Word and Sentence Structure, Processing Word Classes, Processing Spoken Paragraphs, Producing Word Series, and Confrontation Naming.

It seems evident from this analysis, that for most of the subtests of the FLTA and the CELF, the same language skills are not being measured in the same way and in particular, it appears that less than half of each of the tests are even measuring the same skills at all. This conclusion is supported further by the discrepant performance of youngsters from subtest to subtest. Therefore, as a result of these discrepancies it is recommended that the FLTA and the CELF not be used interchangeably. Should speech and language clinicians decide to use these language tests, they should interpret test results with extreme caution. The more different their population is from the test's standardization population, the more cautious the interpretation should become.

The correlations among the overall scores on the FLTA, the CELF, and the CAT revealed a moderate to marked degree of correspondence. As shown in Table 10, the rate of subjects

passing or failing these instruments is inconsistent. The passing and failing rates show that youngsters are doing much better on the CAT than on adolescent language tests. On the CAT, 87% of the subjects passed and only 13% failed. This would suggest that on the FLTA and the CELF, youngsters are performing differently than on achievement tests. The relationship in performance is much better between the CAT and academic grades than adolescent language tests, since the CAT appears to reflect similar levels of performance as academic grades. The subjects did much better on their grades and on the achievement test.

A carefully constructed adolescent language test must include subtests that reflect the language acquistions that take place during adolescence as well as the language skills necessary for success in the classroom and in the community. Yet, there is little evidence that the FLTA or the CELF measure the same language skills taught in the classroom. In fact, correlations among these measures indicate only a modest correspondence between performance. Two aspects of language arts, reading and spelling have a low to moderate correspondence to performance on adolescent language tests. Apparently, youngsters perform better in reading and spelling in the classroom than their oral language skills would suggest. The reason for this may be that there is no written component on either language test to represent the graphic language skills being taught in the classroom. This

discrepancy would seem to imply that adolescent language tests are not measuring the skills teachers believe are important. Although it is recognized that there may be an element of teacher bias or subjectivity which influences grading, this is almost impossible to eliminate. Nonetheless, youngsters appear to be doing better in the classroom than on adolescent language tests.

Recommendations

As a result of this study, the following recommendations for further research of the FLTA and the CELF are made:

1. This study should be replicated on a larger sample of subjects to corroborate the present findings.

2. Local norms should be established for youngsters in the sixth through the twelfth grades on these two adolescent language tests.

3. An item analysis of the CAT, the FLTA, and the CELF should be made to account for the discrepancies in test results between the tests.

4. A content analysis of the language arts curriculum in the classroom should be carried out to account for the divergence in performance between the adolescent language tests and classroom achievement.

5. Spontaneous language sampling should be employed to establish a correspondence between everyday language use and the language of adolescent language tests.

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APPENDIX A

Parental Consent Form

Parental Consent Form

Dear Parents:

We would like to involve your child in a study comparing four adolescent language assessment tests. We feel this study will help the classroom teacher and the speech-language specialist by: (a) providing an adequate assessment tool for measuring language abilities in the adolescent, (b) aiding the speech-language specialist in recognizing and helping children with specific language needs, and (c) helping the classroom teacher to supplement language arts skills of adolescents with language growth needs.

The four tests to be used in this study are: the Clinical Evaluation of Language Functions, the Screening Test of Adolescent Language, the Fullerton Language Test for Adolescents, and the Test of Adolescent Language. Testing will interfere as little as possible with important classroom activities and will in no way affect your child's grades. None of the results will be seen by any unauthorized persons.

Once again, this project will aid the speech-language specialist in finding an adequate language assessment tool for the adolescent and will not be used for labeling children. To

carry out this study, we need your consent. If you are willing to allow your child to participate please sign below.

Sincerely,

_____

Speech-language Specialist

_____

Parent's signature

February 15, 1982

APPENDIX B

Order of Testing

Order of Testing

Subjects	Test 1	Test 2	Test 3	Test 4
1	FLTA	TOAL (I)	TOAL (G)	CELF
2	CELF	FLTA	TOAL (I)	TOAL (G)
3	TOAL (I)	FLTA	TOAL (G)	CELF
4	FLTA	TOAL (I)	TOAL (G)	CELF
5	CELF	FLTA	TOAL (I)	TOAL (G)
6	TOAL (I)	FLTA	TOAL (G)	CELF
7	FLTA	TOAL (I)	TOAL (G)	CELF
8	CELF	FLTA	TOAL (I)	TOAL (G)
9	FLTA	TOAL (1)	TOAL (G)	CELF
10	FLTA	TOAL (I)	TOAL (G)	CELF
11	CELF	TOAL (I)	FLTA	TOAL (G)
12	FLTA	TOAL (I)	TOAL (G)	CELF
13	FLTA	TOAL (I)	TOAL (G)	CELF
14	CELF	FLTA	TOAL (I)	TOAL (G)
15	FLTA	TOAL (I)	TOAL (G)	CELF
16	FLTA	TOAL (I)	TOAL (G)	CELF
17	CELF	TOAL (I)	FLTA	TOAL (G)
18	FLTA	TOAL (I)	TOAL (G)	CELF
19	FLTA	TOAL (I)	TOAL (G)	CELF
20	CELF	TOAL (I)	FLTA	TOAL (G)
21	FLTA	TOAL (I)	TOAL (G)	CELF
22	FLTA	TOAL (I)	TOAL (G)	CELF

Order of Testing (continued)

Subjects	Test 1	Test 2	Test 3	Test 4
23	CELF	FLTA	TOAL (I)	TOAL (G)
24	FLTA	TOAL (I)	TOAL (G)	CELF
25	FLTA	TOAL (I)	TOAL (G)	CELF
26	CELF	FLTA	TOAL (I)	TOAL (G)
27	CELF	FLTA	TOAL (I)	TOAL (G)
28	FLTA	TOAL (I)	TOAL (G)	CELF
29	CELF	FLTA	TOAL (I)	TOAL (G)
30	FLTA	TOAL (I)	TOAL (G)	CELF

FLTA: Fullerton Language Test for Adolescents
CELF: Clinical Evaluation of Language Functions
TOAL (G): Test of Adolescent Language (Group)
TOAL (I): Test of Adolescent Language (Individual)

APPENDIX C

Description Of FLTA Subtests

Description of FLTA Subtests

Thorum (1980)

Subtest I: Auditory Synthesis (20 items)

Assesses the ability to synthesize phonemic sounds or units of sound that are presented separately in a word or utterance.

Part A: Phonemes - a series of phonemes are spoken at intervals by the examiner, requiring the individual to blend the phonemes together to produce actual or nonsense words.

Part B: Syllables - a series of syllables are spoken at intervals and blended together into actual or nonsense words by the student.

Subtest II: Morphology Competence (20 items)

Assesses the ability to analyze the morphological elements of words and to use them correctly. The examiner presents a word orally to the individual who uses it in an utterance to demonstrate understanding of the word and its morphological rule.

Part A: Suffixes - contains 5 root words and a variety of bound morphemes.

Part B: Prefixes - contains 5 root words and a variety of bound morphemes.

Subtest III: Oral Commands (20 items)

Assesses the ability to perform a number of tasks that vary in length and syntactical complexity.

Subtest IV: Convergent Production (75 items)

Assesses the ability to identify, retrieve, and formulate responses to different words with specific meanings. The examiner says a key word such as "male" or "mail" and asks for as many definitions of the word as possible.

Subtest V: Divergent Production (5 items)

Assesses the ability to categorize, retrieve, and formulate responses that satisfy semantic expansion imposed by context. The individual is presented with five different categories and must name as many members of each category as possible in 20 seconds.

Subtest VI: Syllabication (20 items)

Assesses the ability to identify syllables and to detect the number of syllables in words.

Subtest VII: Grammatic Competency (20 items)

Assesses the ability to identify whether a sentence presented orally is grammatically correct or incorrect and to correct it when appropriate.

Subtest VIII: Idioms (20 items)

Assesses the ability to identify the underlying meaning of utterances that may have several meanings.

APPENDIX D

Description of CELF Subtests

Description of CELF Subtests

Semel & Wiig (1981)

Subtest I: Processing Word and Sentence Structure

Assesses the ability to process and interpret selected word and sentence structures. The items probe: (a) prepositional phrases, (b) pronouns, (c) verb tenses, (d) regular nouns, (e) noun possessives in indirect object transformations, (f) noun phrases with modifier sequences including four adjectives (g) explicit negation, (h) passive transformations, (i) wh-interrogatives, (j) indirect object transformations, and (k) relative clause transformations with "embedding". There are four pictures, with one providing an accurate representation of the meaning of the stimulus sentence and three foils. A pointing response is required.

Subtest II: Processing Word Classes

Evaluates the ability to perceive relationships between verbal concepts by identifying word pairs which are from different but related subclasses. The word pairs to be identified represent one or more of the following: (a) semantic class, (b) antonyms, (c) spatial, (d) temporal, (e) agent-action, (f) superordinate-subordinate relationships.

Subtest III: Processing Linguistic Concepts

Evaluates the ability to process and interpret oral directions which contain linguistic concepts requiring logical operations such as: and, either...or, and if...then. Requires a pointing response.

Subtest IV: Processing Relationships and Ambiguities

Evaluates the ability to process and interpret logico-grammatical and ambiguous sentences which contain: (a) comparative, (b) passive, (c) temporal-sequential, (d) familial, (e) analagous relationships, (f) idioms and metaphors, and (g) proverbs. Items probe: (a) simultaneous analysis and synthesis ability, (b) logical processing ability, and (c) the ability to grasp the abstract meaning of words in figurative language. A yes or no response is given.

Subtest V: Processing Oral Directions

Evaluates the ability to interpret, recall, and execute oral commands of increasing length and complexity, The items probe: (a) the retention and recall of verbal directions of increasing level, (b) the analysis, synthesis, and recall of adjective sequences of increasing length, (c) the interpretation and recall of serial position, and (d) the interpretation and recall of left/right spatial orientation. All 25 oral commands require a pointing response.

Subtest VI: Processing Spoken Paragraphs

Evaluates the ability to process and interpret spoken paragraphs and recall salient information presented, requiring: (a) knowledge of the vocabulary, (b) ability to process syntactic structure, (c) ability to abstract salient information in paragraphs, and (d) retention and recall of details. Contains four paragraphs, requiring a verbal response that is recorded verbatim on the score form.

Subtest VII: Producing Word Series

Assesses the accuracy, fluency, and speed in recalling and producing selected automatic-sequential word series. The items probe: (a) the availability of selected word series in long term memory, (b) accuracy in the recall and retrieval of automatic serial language, and (c) speed of retrieval and production of selected word series. Requires accurate, rapid recall of the names of the days of the week and the names of the months of the year. Responses are scored for accuracy and speed.

Subtest VIII: Producing Names on Confrontation

Designed to evaluate accuracy, fluency, and speed in naming colors, forms, and color-form combinations in a sustained confrontation naming task. This subtest probes: (a) accuracy in the rapid retrieval of common words, (b) fluency and agility in formulating words in rapid naming, and (c) speed of word identification and retrieval. Performance on this test reflects: (a) word finding problems, and (b) the speed and fluency of

naming, measured by the total time required to complete the naming process.

Subtest IX: Producing Word Associations

Evaluates the quantity and quality of the retrieval of semantically related word series from long term memory. It probes: (a) fluency and flexibility in identifying members of semantic classes, (b) speed of identification of semantically related words, (c) use of associative grouping strategies. Assesses production of two semantically related word series, foods and animals. The task requires identification and production of as many class members as possible within a sixty second period for each semantic class. Responses are judged with respect to quantity for each semantic class and for quality by the number of subclasses named and shifts between the various subclasses.

Subtest X: Producing Model Sentences

Assesses the child's productive control of sentence structure in a sentence repitition task. It features 23 semantically and structurally appropriate sentences and seven items with violations in syntactic structure and meaning. This subtest probes: (a) linguistic competence, (b) retention and recall of sentence structure, (c) dependency on semantic content and consistency for retention and recall, and (d) resistance to deviations in meaning and structure in the immediate recall of word sequence.

Subtest XI: Producing Formulated Sentences

Evaluates the ability to formulate and produce sentences when word and sentence form choices are limited and when semantic and syntactic constraints are introduced by a word which must be included. Probes aspects of language related to recognition of constraints on word selection and sentence structure, identification, sequencing and production of words and concepts, and identification and recall of appropriate grammatical sentence structure. Responses are scored for level of structural complexity.

APPENDIX E

Correlation Matrix for the FLTA

Correlation Matrix for the FLTA

	FMC	FOC	FCP	FDP	FSB	FGC	FID
FAS	r = .734 p = .001	r = .478 p = .004	r = .630 p = .001	r = .221 p = .120	r = .628 p = .001	r = .347 p = .030	r = .267 p = .077
FMC		r = .496 p = .003	r = .648 p = .001	r = .424 p = .010	r = .598 p = .001	r = .229 p = .112	r = .447 p = .007
FOC			r = .711 p = .001	r = .412 p = .012	r = .275 p = .071	r = .358 p = .026	r = .189 p = .158
FCP				r = .469 p = .004	r = .419 p = .011	r = .370 p = .022	r = .429 p = .009
FDP					r = .369 p = .022	r = .376 p = .020	r = .374 p = .021
FSB						r = .233 p = .108	r = .318 p = .043
FGC							r = .230 p = .111

FLTA: Fullerton Language Test for Adolescents
FAS: Auditory Synthesis
FMC: Morphology Competence
FOC: Oral Commands
FCP: Convergent Production
FDP: Divergent Production
FSB: Syllabication
FGC: Grammatic Competence
FID: Idioms

APPENDIX F

Correlation Matrix for the CELF Processing Subtests

Correlation Matrix for the CELF Processing Subtest

	PRWC	PRLC	PRRA	PROD	PRSP
PRWSS	r = .396 p = .015	r = -0.054 p = .388	r = .335 p = .035	r = .119 p = .265	r = .171 p = .183
PRWC		r = .077 p = .343	r = .537 p = .001	r = .417 p = .011	r = .196 p = .150
PRLC			r = .545 p = .001	r = .378 p = .020	r = .478 p = .004
PRRA				r = .617 p = .001	r = .621 p = .001
PROD					r = .497 p = .003

CELF: Clinical Evaluation of Language Functions
PRWSS: Processing Word and Sentence Structure
PRWC: Processing Word Classes
PRLC: Processing Linguistic Concepts
PRRA: Processing Relationships and Ambiguities
PROD: Processing Oral Directions
PRSP: Processing Spoken Paragraphs

APPENDIX G

Correlation Matrix for the CELF Production subtests

Correlation Matrix for the CELF Production Subtests

	PDCN/SEC	PDWA	PDMS	PDFS
PDCN/NO	r = .577 p = .001	r = .410 p = .012	r = .394 p = .016	r = .091 p = .316
PDCN/SEC		r = .497 p = .003	r = .259 p = .083	r = .457 p = .006
PDWA			r = .437 p = .008	r = .288 p = .061
PDMS				r = .276 p = .070

CELF: Clinical Evaluation of Language Functions
PDCN/NO: Producing Names on Confrontation/Number
PDCN/SEC: Producing Names on Confrontation/Seconds
PDWA: Producing Word Associations
PDMS: Producing Model Sentences
PDFS: Producing Formulated Sentences

APPENDIX H

Correlation Matrix for the CELF Processing and Production Subtests

Correlation Matrix for the CELF Processing and Production Subtests

	PRWSS	PRWC	PRLC	PRRA	PROD	PRSP
PDCN/NO	r = -0.030 p = .439	r = .313 p = .046	r = .006 p = .487	r = .258 p = .084	r = .477 p = .004	r = .225 p = .116
PDCN/SEC	r = .017 p = .464	r = .384 p = .018	r = .187 p = .161	r = .468 p = .005	r = .688 p = .001	r = .327 p = .039
PDWA	r = .262 p = .081	r = .458 p = .006	r = .273 p = .072	r = .512 p = .002	r = .651 p = .001	r = .374 p = .021
PDMS	r = .121 p = .262	r = .313 p = .046	r = .654 p = .001	r = .571 p = .001	r = .567 p = .001	r = .523 p = .002
PDFS	r = -0.109 p = .284	r = .282 p = .065	r = .263 p = .080	r = .406 p = .013	r = .407 p = .013	r = .576 p = .001

CELF: Clinical Evaluation of Language Functions
PRWSS: Processing Word and Sentence Structure
PRWC: Processing Word Classes
PRLC: Processing Linguistic Concepts
PRRA: Processing Relationships and Ambiguities
PROD: Processing Oral Directions
PRSP: Processing Spoken Paragraphs
PDCN/NO: Producing Names on Confrontation/ Number
PDCN/SEC: Producing Names on Confrontation/Seconds
PDWA: Producing Word Associations
PDMS: Producing Model Sentences
PDFS: Producing Formulated Sentences

VITA

Stephanie Karen West was born in Dillon, South Carolina on May 18, 1954. She attended elementary school in Fairmont, North Carolina and graduated from Pinecrest High School in June 1972. In January 1976, she entered Western Carolina University, and in May 1978, she received a Bachelor of Science degree in Speech Pathology and Audiology. In the Fall of 1980, she began her work toward a Master's Degree at Appalachian State University. This degree was awarded in May, 1985 in the field of Speech Pathology.

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